

**A. TITLE**

**APPLICATION FOR PERMIT FOR SCIENTIFIC PURPOSES UNDER THE  
ENDANGERED SPECIES ACT OF 1973**

**B. SPECIES**

**PUGET SOUND CHINOOK USE OF NEWLY CREATED HABITAT  
BELLINGHAM BAY  
BELLINGHAM, WASHINGTON**

**C. DATE OF PERMIT APPLICATION**

5/25/06

**D. APPLICANT**

Port of Bellingham  
Mike Stoner  
Director of Environmental Programs  
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## **E. PERSONNEL, COOPERATORS, AND SPONSORS**

### **1. Personnel**

Principal investigator:

Sam Casne  
Associate Fisheries Scientist  
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Mr. Casne is a fisheries Scientist with 30 years experience managing fisheries resources. He sampled salmonids in the Cedar River Watershed, Washington using electrofishing and other techniques. He sampled salmonid populations in Ross Lake (Upper Skagit River, Washington) to study the impacts of raising Ross Dam. He also sampled striped bass and other species in the Hudson River, New York, using electrofishing, gill nets, and other gear. He has prepared numerous biological assessments (BAs) for projects that required compliance with the Endangered Species Act and knows and understands the life histories and habitat requirements of listed salmonids. He has experience preparing BAs for Federal Highways Administration, Washington State Department of Transportation, Bonneville Power Administration, Housing and Urban Development, and the U.S. Army Corps of Engineers (Corps). Mr. Casne has worked as a consultant assisting clients with endangered species studies, stream restoration design, stream habitat and classification studies, wetland delineation, wetland inventories, and project permitting. Mr. Casne also has 5 years experience with King County Surface Water Management, where he managed the design and construction of numerous stream restoration and enhancement projects, and high flow bypass systems. His experience includes stream relocation in conjunction with road construction projects and stormwater management projects. He has 10 years experience with the Regulatory Branch at the Seattle District Corps of Engineers. Mr. Casne analyzed permit applications requiring Section 10 and Section 404 permits from the Corps for impacts to fisheries resources.

Field Supervisor:

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Staff Wildlife Biologist  
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## **2. Subcontractors**

Subcontracting will be required for the seining vessel and nets, but have not yet been selected. The Principal Investigator or Field Supervisor will be present on the seining vessel during the monitoring events. Under no circumstances will live Chinook salmon be held or transported. All subcontractors will be briefed prior to sampling to make certain that they understand this requirement.

## **3. Cooperators**

In the event that a Chinook salmon or bull trout dies during the monitoring events, the carcass will be collected and provided to the Washington State Department of Fish and Wildlife (WDFW) for the purposes of positive identification and documentation. This will be the only time a taken listed species would be transported under this permit.

## **4. Funding**

Funding for this project is being provided by the Port of Bellingham.

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## **F. PROJECT DESCRIPTION, PURPOSE, AND SIGNIFICANCE**

The Port of Bellingham (Port) has been involved in the remediation and rehabilitation of the Gate 2 Boatyard in northern Bellingham Bay. As part of the mitigation for dredging, and as agreed during the biological evaluation and informal consultation with the U.S. Army Corps of Engineers (Corps; contact is Randall Perry (206) 764-6985) and services (National Oceanic and Atmospheric Administration [NOAA] Fisheries (contact is Bob Donnelly (206) 526-6117) and U.S. Fish and Wildlife Service [USFWS]), a subtidal sediment “bench” was created on the seaward (west) side of the rock breakwater at the Port of Bellingham’s Outer Squalicum Harbor. Clean sediment dredged from the nearby Squalicum Channel was used to create the bench. The purpose of this sediment bench was to reduce the depth of the water outside the breakwater and provide shallow subtidal nearshore habitat for the benefit of threatened or endangered fish, primarily threatened Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*). Adult threatened bull trout (*Salvelinus malma*) and other non-threatened/non-endangered fish may also utilize the bench. A separate permit has been

obtained from the USFWS for the possible take of bull trout [Federal Fish and Wildlife Permit, Section 10(a)(1)(A), TE088857-0].

The Habitat Action Team (HAT) for the Bellingham Bay Demonstration Pilot Work Group identified the mitigation site as one of several feasible mitigation sites within Bellingham Bay. In addition, the HAT developed a monitoring framework that is intended to be a menu of priority monitoring objectives that can be selected and combined into project specific monitoring plans to address the unique goals of individual projects in the Bellingham Bay ecosystem. This mitigation project and the monitoring are consistent with the overall Bellingham Bay Demonstration Pilot work group efforts.

The currently issued National Marine Fisheries Endangered Species Act section 10(a)(1)(A) research permit No. 1498 will expire on December 31, 2006. To continue the work authorized by the permit in 2007, a new permit application is being submitted no later than June 15, 2006, as required. This take permit application is being submitted to comply with the specific habitat monitoring plan (guided by the HAT monitoring framework) that was developed through previous consultation with the Corps (Randall Perry) and WDFW for the Gate 2 Boatyard project (contact is Brian Williams (360) 466-4345 ext 250). Biological productivity monitoring (seining for juvenile Chinook salmon) was conducted on May 25, 2005. Juvenile Chinook salmon were sampled; therefore, seining will occur one more time between May and July of 2007. This will conclude the seining effort for this monitoring plan. Each seining effort will occur twice per spring, roughly three weeks apart, based on juvenile salmon outmigration timing.

The goal of the mitigation monitoring is to determine whether the salmonids (target species; primarily Chinook salmon) are utilizing the newly created habitat. This, in turn, will allow an assessment of the effectiveness of the mitigation. If salmonids are found at the bench, future monitoring requirements will be abandoned as the effectiveness will have been demonstrated adequately. In addition, if the subtidal bench is being used by salmonids, the Port may wish to extend the current subtidal bench, or create additional similar benches to provide fish habitat, as mitigation for other planned in-water improvements and maintenance operations within Bellingham Bay.

## **G. PROJECT METHODOLOGY**

We will attempt to use a beach seine to sample the area. The beach seine is a Puget Sound protocol beach seine, 37 m x 2m, with ¼-inch mesh. Given the subtidal position of the bench against a rock breakwater, beach seining may not be effective. Therefore, we may use an enclosure net. This gear has been used successfully in Puget Sound along rip-rap habitat (J. Toft, et al. 2004). This net consists of a 60-meter-long by 4-meter-deep net placed around poles to enclose a 20-meter square section of the shoreline. The mesh size is 0.64 centimeter. The poles are installed on a low tide the day before the net deployment. The net will be installed on a high tide. All trapped fish will be removed from the enclosure with a small pole seine (1.2-m x 9.1-m, 0.64-cm mesh) or dip nets as the tide recedes and placed into clean holding containers filled with native seawater. A quick estimate of the number of each non-target species will be made and these fish will be returned directly to the bay.

Target species will be removed from holding containers and placed together in a separate container containing the sedative triacine methanesulfonate (MS222). Following anesthetization, field personnel will quickly weigh and measure the fork length of the target species, place them in a holding container with native seawater, and release them to the bay following apparent recovery from the anesthesia. Potential fish injury and mortality may occur if large quantities of fish are collected. The object of the sampling is to determine if juvenile salmon are using the mitigation area, not to make a quantitative estimate of the salmon using the area. Based upon recent studies completed in the Bellingham Bay area (Rice 2004), sample sizes range from 0 to 32 fish captured in a net set. We anticipate similar numbers in our study. Therefore, if over 100 juvenile salmon are collected in a net set, only a subset (25%) of these will be anesthetized, weighed, and measured to avoid injury to the collected species. The remaining fish will be identified to species, quickly counted, and returned to the water to avoid mortality or injury.

Two net sets are anticipated during each of two one-day monitoring events, conducted during the spring and early summer of 2007. Monitoring events will be planned coincident with the expected peak of salmon outmigration from salmon spawning streams that enter Bellingham Bay and from hatchery releases.

Post-construction juvenile salmonid use reports will be submitted to the Corps within 6 months of monitoring activities as described in the mitigation plan. Reporting will consist of a brief description of sampling methods and results, including numbers of all species of fish captured and fork lengths and weights of all juvenile salmon and bull trout captured. Monitoring reports will be submitted to the services, the Corps, and the Washington Department of Fish and Wildlife (WDFW). The report will prominently display the reference number 200201330, *Special Condition (c)*. In addition, we will send WDFW a completed fish capture record. See attached 2007 report format (Appendix A).

## **H. DESCRIPTION AND ESTIMATE OF TAKE**

The Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*) Evolutionary Significant Unit (ESU) includes the Nooksack River. Wild spring-run are present in the North and South Fork Nooksack River (WDFW, et al. 1993). Supplementation (i.e., hatchery) programs currently exist for spring-run Chinook on the North Fork Nooksack River (USACE 2000). NMFS ruled in 2005 that spring-run stocks from the Kendall Creek Hatchery, located on the North Fork Nooksack River, are included in the Puget Sound Chinook salmon ESU (NMFS 2005). Spring-run stocks in both river forks are considered critical by WDFW because of chronically low spawning escapements.

Hatchery-reared Chinook salmon are found in other Bellingham Bay creeks, including Whatcom Creek, about 1 mile southeast of the mitigation bench. Tyler (1964) reported that there were no known salmon runs on Whatcom Creek, while the WDFW Stream Catalog of 1975 reported both coho and chum (WDFW 1975). It is believed that some of the hatchery Chinook have naturalized and now spawn in Whatcom Creek. (McGowan 1999; Steel 2000). Because the mitigation bench area is located within about one mile of the Nooksack estuary

and other streams where Chinook are reared and released from hatcheries, it is likely that juvenile and adults could be present in the vicinity of the bench.

Salmonids to be netted from Bellingham Bay during the monitoring events are expected to be primarily juveniles, approximately 7-10 cm in length. Any adult salmonids netted may be of varying lengths. Based on previous seining experience, a maximum of 200 salmonids are expected to be caught in each set of the seine, or 400 salmon per monitoring year. Given the limited handling during the mitigation monitoring events, it is expected that all fish caught alive will be returned alive to their approximate point of capture and any mortalities will be unintentional.

The point of capture will be from the mitigation bench outside of the Port of Bellingham's Outer Squalicum Harbor in North Bellingham Bay (Figure 1). A monitoring event took place May 25, 2005. A second and final event will be scheduled in the spring of 2007, coincident with the expected peak Chinook salmon outmigration from streams entering Bellingham Bay. It is likely that hatchery-raised Chinook will be the dominant salmon species captured because of the presence of hatcheries near the point of collection and likely releases from the hatcheries at the approximate time of the monitoring events.

Essential fish habitat (EFH) is protected under the Magnuson-Stevenson Fishery Conservation and Management Act (MSA). Salmon EFH is present in the Bellingham Bay. The construction of the mitigation bench is intended to provide additional habitat for salmonids, and, therefore, is likely to be a net gain of EFH due to the project. Additional information regarding salmon and EFH within Bellingham Bay is provided in the Biological Evaluation for the Gate 2 Boatyard (Landau Associates 2002).

## **I. POTENTIAL FOR MORTALITY**

A potential exists for mortality of target and non-target species, primarily due to capture within the seine, handling, and anesthetization. Once captured, all fish will be carefully removed from the seine with brailers and placed into holding containers with native seawater. Non-target species numbers will be quickly estimated and then these fish will be returned to the water near the point of capture. Mortality of non-target species is expected to be minimal and related primarily to capture and removal from the seine.

Salmonids will be removed from the brailers or other holding containers with gloved hands or an aquarium net and placed into containers with native seawater and MS222. These containers will be kept out of the sun. The concentrations of MS222 will be carefully measured and kept within recommended guidelines. No adult Chinook salmon will be anesthetized. Adults will be immediately returned to the water. All subsequent handling of the fish will be with gloved hands. The measuring board and weigh boats will be smooth and kept wet to avoid the removal of fish scales. Any aquarium nets used to retrieve fish from the holding containers will be very fine mesh, also to avoid the removal of scales or snagging of fins and gills. Release of the fish will be at or below water level to avoid impact of the fish on the water's surface.

Potential fish injury and mortality may occur if large quantities of fish are collected. The object of the sampling is to determine if juvenile salmon are using the mitigation area, not to make a quantitative estimate of the salmon using the area. Therefore, if over 100 juvenile salmon are collected in a net set, only a subset (25%) of these will be anesthetized, weighed, and measured to avoid injury to the collect species. The remaining fish will be identified to species, quickly counted, and returned to the water to avoid mortality or injury.

Overall, given the limited handling and release to native waters at the approximate point of capture, the potential for mortality is low for this mitigation monitoring project.

#### **J. COOPERATIVE BREEDING PROGRAM**

If requested by the Corps or the other regulatory services, the Port and Landau Associates are willing to participate in a cooperative breeding program by contributing data from our monitoring efforts.

#### **K. PREVIOUS OR CONCURRENT ACTIVITIES INVOLVING LISTED SPECIES**

The principal investigator, Sam Casne, has prepared numerous Biological Assessments that evaluate project impacts on threatened and endangered species including Pacific salmon, marine mammals and wildlife species in the Puget Sound and surrounding regions.

#### **L. CERTIFICATION**

I hereby certify that the foregoing information is complete, true, and correct to the best of my knowledge and belief. I understand this information is submitted for the purpose of obtaining a permit under the Endangered Species Act of 1973 (ESA) and regulations promulgated thereunder, and that any false statement may subject me to the criminal penalties of 18 U.S.C. 1001, or to penalties und the ESA.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Mike Stoner  
Director of Environmental Programs

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Name and Position Title

## **M. SOURCES OF DATA**

Landau Associates. 2002. *Biological Evaluation and Essential Fish Habitat Assessment, Gate 2 Boatyard, Bellingham, Washington*. Prepared for Port of Bellingham. December 20.

McGowan, J. 1999. Personal communication. Telephone conversation with Jeff McGowan, Washington State Department of Fish and Wildlife, and Paul Schlenger, Anchor Environmental, October 21, 1999.

NMFS. 2005. *Endangered and Threatened Species: Final Listing Determinations for 16 ESUs of West Coast Salmon, and Final 4(d) Protective Regulations for Threatened Salmonid ESUs; Final Rule*. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 50 CFR Parts 223 and 224. Federal Register 70(123):37160-37204. June 28.

Rice, C. 2003 *Bellingham Bay Juvenile Chinook Townetting Project Field sampling and Data Summary*. Watershed Program, NW Fisheries and Science center, NOAA/NMFS. Seattle WA., February.

Steel, E. 2000. Personal communication to Earl Steel, Bellingham Technical College Whatcom Creek Hatchery director, from Margaret McCauley, Anchor Environmental, February 28, 2000.

Toft, J, J Cordell, C. Simenstad, L. Stamatiuo, 2004. *Fish Distribution, Abundance, and Behavior at Nearshore Habitats along City of Seattle Marine Shorelines, with an emphasis on Juvenile Salmonids*. University of Washington, School of Aquatic & Fisheries Sciences. SAFS-UW-0401. March.

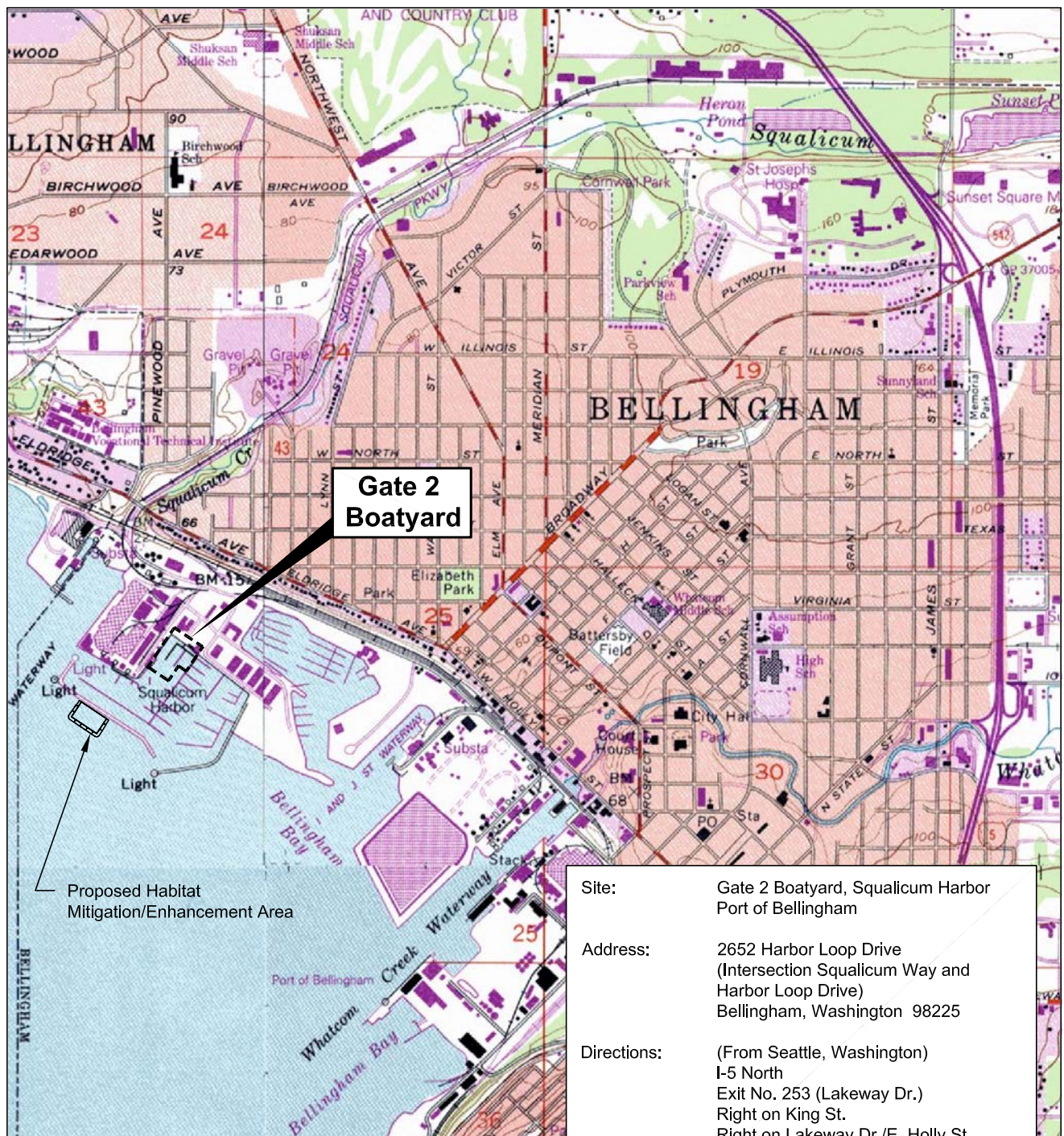
Tyler, R.W. 1964. *Distribution and Migration of Young Salmon in Bellingham Bay, Washington*. Fisheries Research Institute Circular No. 212, University of Washington.

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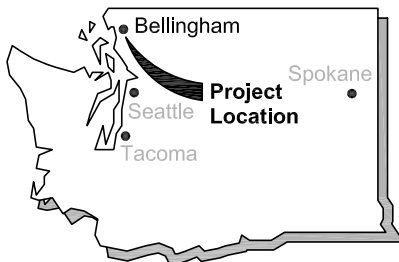
WDF. 1975. A Catalog of Washington Streams and Salmon Utilization, Volume 1, Puget Sound Region. Washington Department of Fisheries, Olympia, Washington.

WDF, et al. 1993. *1992 Washington State Salmon and Steelhead Stock Inventory*. Washington State Department of Fisheries, Washington State Department of Wildlife and Western Washington Treaty Indian Tribes.





Map from DeLorme Street Atlas USA 2002

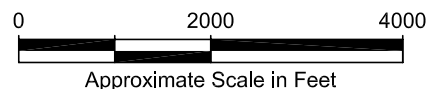


Site: Gate 2 Boatyard, Squalicum Harbor  
Port of Bellingham

Address: 2652 Harbor Loop Drive  
(Intersection Squalicum Way and  
Harbor Loop Drive)  
Bellingham, Washington 98225

Directions: (From Seattle, Washington)  
I-5 North  
Exit No. 253 (Lakeway Dr.)  
Right on King St.  
Right on Lakeway Dr./E. Holly St.  
Left on "F" St.  
Right on Roeder Ave.  
Left on Squalicum Way  
Left on Harbor Loop Drive

Latitude: 48° 45' 47"  
Longitude: 122° 30' 36"



Approximate Scale in Feet

**Anticipated Annual Take**

<b>ESU/Species and population group if appropriate</b>	<b>Life Stage</b>	<b>Origin</b>	<b>Take Activity</b>	<b>Number of Fish Requested</b>	<b>Requested Unintentional Mortality</b>	<b>Research Location</b>	<b>Research Period</b>
PS Chinook Salmon	Juvenile	Naturally Produced	Capture, handle, release	50	5	Bellingham Bay, Puget Sound	May-June, 2007
PS Chinook Salmon	Adult	Naturally Produced	Capture, release	5	0	Bellingham Bay, Puget Sound	May-June, 2007
PS Chinook Salmon	Juvenile	artificially- propagated with clipped adipose fins	Capture, handle, release	150	15	Bellingham Bay, Puget Sound	May-June, 2007
PS Chinook Salmon	Adult	artificially- propagated with clipped adipose fins	Capture, release	20	0	Bellingham Bay, Puget Sound	May-June, 2007